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Agriculture in Public Schools.

A SPECIAL bulletin has lately been issued by the Honorable C. C. James, Deputy Minister of Agriculture of Ontario, on the "Teaching of Agriculture in the Public Schools." It is argued in this paper that instruction in agriculture should be made obligatory in the common schools because so large a proportion of the people depend upon it; because such a large amount of capital is invested in it, and because of the large share it contributes to trade and commerce. But if it is admitted that such instruction is needed, a more practical question is: How is it possible to teach this art in any way that will be effective? In our common schools, for example, there would seem little place for the introduction of any new branches of study for children between seven and fifteen years of age. If they are to receive lessons in farming or gardening, it is very plain, in the first place, that some other branches must be neglected or excluded from the curriculum; and, in the second place, a corps of teachers must be trained to a rather intimate knowledge not only of the practice of the art of cultivating plants, but of the sciences on which this practice rests. We cannot expect graduates of public schools to have any profound knowledge of botany, economic entomology, agricultural chemistry and the like, but the man who teaches these pupils must have a reasonable familiarity with these and other sciences, or he is not fit to be an instructor.

When we consider how much time and labor and organization all this implies, we feel inclined to say that the project is impracticable; but we are faced by the fact that in France the Government is doing just this thing, and doing it with apparent success. We do not refer particularly to the agricultural university in Paris, which is famous all over the world, nor to the national schools of horticulture, agriculture, forestry, veterinary science, dairying and sheep-raising which have been established in various parts of the Republic. Agriculture has not only been introduced into the superior schools, where there are pupils from thirteen to fifteen years of age, but in the elementary schools, where the pupils range from seven to thirteen years old, and even in the infant schools, attended by children under seven years of age. At first, instruction in agriculture was made optional in the public schools, and between 1850 and 1879 it was dependent upon aid from agricultural societies and private benefactions. In 1879, however, a law was passed which compelled all the one hundred and sixty normal schools of the country to provide within six years agricultural instruction for the teachers in training, and requiring, further, that the primary schools should within three years make instruction in agriculture and horticulture compulsory.

The introduction of agriculture in the schools then began, where it should have done, with the training of the teachers. Many of the schools have small gardens attached as well as agricultural museums, and children under nine years old have lessons in these gardens. From nine to eleven years, together with their reading, object-lessons and excursions, they receive lessons on the principal kinds of fertilizers and on the implements of husbandry and agricultural work in general. From nine to eleven, in addition to this, they are instructed in seed-sowing and harvesting, in growing the vegetables of the district in which they live, in cultivating and propagating trees, and in caring for domestic animals, etc. In the superior schools the course extends over two years, and it includes a very complete course in agriculture, which is varied to suit the special needs of the locality, and illustrated in school-gardens and experimental fields, and by visits to the farms of the surrounding districts. In some of these schools there is a special agricultural section under the charge of an agricultural professor.

Of course, this work is only in its early stages, but the success achieved is encouraging. At all events, good observers say that the practice of agriculture and horticulture in France is admirable, and that this is largely due to the Government colleges and that it is being steadily improved by the teachings in the public schools. Mr. James feels that a similar movement ought to be begun in Ontario, and one of his best reasons is that this primary instruction will very largely increase the number of those who desire a more thorough course of training in the colleges. Knowing how our teachers are paid, and remembering, too, that teaching has hardly reached the dignity of an established profession in this country, but is usually taken up by young persons for a few years as a temporary occupation until they can find something better to do, the prospect of securing a corps of instructors who are able to teach the arts of cultivation as thoroughly as they should be taught, seems very remote. But, if we can imagine such a thing as teachers adequately equipped for this work in all the common schools of the country, we are convinced that this would be a most valuable part of the education of the rising generation. By this we do not mean that all these students would be competent to conduct a farm or garden in the most successful way, but as a mere mental discipline and as a part of ordinary mental furniture such training would have great value. In the first place there is no greater mystery to the ordinary man and woman than the processes of vegetation which go on all about them. Even intelligent men do not know the names of the trees which they pass every day, much less of the grasses and plants they tread upon. No story is too wonderful for their belief. Reputable newspapers will publish accounts of an extraordinary Elm-tree somewhere which bears acorns, or of a plant which can accurately foretell the weather; and sharpers will go through a village street and sell in almost every house, at $1 each, the seeds of some novel plant which he assures the buyers will bear a flower with all the colors of the rainbow and with a fragrance which can easily be enjoyed a mile away. All this is simply because men do not observe the ordinary ongoings of life about them, and elementary instruction in these matters to the young will give them

habits of observation and a knowledge of principles which would make life more interesting to any one, even if he never owned a garden or was the proprietor of a rood of land. If a competent and sympathetic teacher should do no more than devote a portion of a day each week to the work of familiarizing children with plant-life and its essential conditions, with the help of living illustrations which could be found by the way-side, or in an experimental garden-bed a rod square on the school-grounds, or even from a dozen window-plants in winter, the young people would find this the most delightful part of their course of study, and they would acquire knowledge and habits of thought that would be invaluable all through their lives.

Notes on the Forest Flora of Japan.—II.

TRAVELERS in Japan have often insisted on the resemblance between that country and eastern America in the general features of vegetation. But with the exception of Yezo, which is still mostly uninhabited and in a state of nature, and those portions of the other islands which are above 3,000 feet over the level of the ocean, it is difficult to form a sufficiently accurate idea of the general appearance of the original forest-covering of Japan to be able to compare the aspects of its vegetation with those of any other country, for every foot of the lowlands and the mountain valleys of the three southern islands have been cultivated for centuries. And the foot-hills and low mountains which were once clothed with forests, and might be again, are now covered with coarse herbage (principally Eulalia) and are destitute of trees, except such as have sprung up in sheltered ravines and have succeeded in escaping the fires which are set every year to burn off the dry grasses. Remoteness, bad roads, and the impossibility of bringing down their timber into the valleys have saved the mountain forests of Japan, and these may still be seen, especially between 5,000 and 8,000 feet over the level of the sea, in their natural condition. But these elevated forests are composed of comparatively few species, and if it were not for the plantations of Conifers, which the Japanese for at least twelve centuries, it is said, have been making to supply their workers in wood with material, and for the trees preserved or planted in the temple grounds in the neighborhood of towns, it would be impossible to obtain any idea at all of many of the Japanese trees. But, fortunately, the priests of Buddha have planted and replanted trees for a thousand years about their temples, which are often surrounded by what now appear to be natural woods, as no tree is ever cut and no attempt is made to clear up the undergrowth. These groves are sometimes of considerable extent and contain noble trees, Japanese and Chinese, which give some idea of what the inhabitants of the forests of Japan were before the land was cleared for agriculture.

The floras of Japan and eastern America have, it is true, some curious features in common, and the presence in the two regions of certain types not found elsewhere, show their relationship. But such plants are usually small, and for the most part rare or confined to the high mountains. Diphylleia, Buckleya, Epigæa and Shortia show the common origin of the two floras; but these are rare plants in Japan as they are in America, with the exception of Epigæa, and probably not one traveler in ten thousand has ever seen them, while the chief elements of the forest flora of northern Japan, the only part of the empire where, as has already been said, comparison is possible—those which all travelers notice—do not recall America so much, perhaps, as they do Siberia and Europe.

The broad-leaved Black Oaks, which form the most distinct and conspicuous feature in all the forests of eastern America, are entirely absent from Japan, and the deciduous-leaved White Oaks, which, in Japan, form a large part of the forest-growth of the north, are of the European and not of the American type, with the exception of Quercus dentata, which has no related species in America. The Chestnut Oaks, which are common and conspicuous, both in the northern and southern parts of eastern America, do not occur in Japan, and the Evergreen Oaks, which abound in the southern part of that empire, where they are more common than any other group of trees, are Asiatic and not American in their relationships.

Many of our most familiar American trees are absent from the forests of Japan. The Tulip-tree, the Pawpaw or Asimina, the Ptelea or Hop-tree, the Loblolly Bay or Gordonia, the Cyrilla and the Cliftonia, the Plum-trees, which abound here in many forms, the Texas Buckeye (Ungnadia), the Mesquit, the Locusts, the Cladrastis or Virgilia, the Kentucky Coffee-tree or Gymnocladus, the Liquidambar, the Tupelos, the Sourwood or Oxydendron, the Osage Orange, the Kalmia, the Sassafras, the Persea or Red Bay, the Planera or Water Elm, the Plane Tree, the Black Walnut, the Hickories and the deciduous Cypress—all common and conspicuous in our forests—are not found in Japan. Cratægus, with a dozen species, is one of the features of the forest flora of eastern America, while in Japan the genus is represented by a single species, confined to the northern part of the empire, and nowhere very common. The Japanese Maples, with the exception of Acer pictum, which is not unlike our Sugar Maple, have no close resemblance or relationship with the American species; the Beech and the Chestnut are European, and not American; the Birches, with one exception, are of the Old World type, as are the Lindens, Ashes, Willows, the Celtis, the Alders, Poplars and Larches.*

On the other hand, the Japanese miss in our forests Euptelia, Cercidophyllum and Trochodendron, all of the Magnolia family, Idesia, the arborescent Ternstrœmiaceæ (Ternstrœmia, Cleyera, Eurya and Camellia), Phellodendron and Hovenia, Euscaphis, Mackia and Albizzya, Distylium, Acanthopanax, Syringa, many arborescent Lauriniæ (Cinnamomum, Machilus, Actinodaphne, Litsea), which, next to the Evergreen Oaks, are the most salient features of the forest flora of southern Japan. He will miss, too, the beautiful arborescent Linderas which abound in Japan, while in America the genus is only represented by two unimportant shrubs, the arborescent Euphorbiaceæ, like Buxus, Daphniphyllum, Aleurites, Mallotus, Excœcaria, Zelkova, Aphananthe, Broussonetia and Debregeasia, or find anything to remind him of Pterocarya and Platycarya, of Cryptomeria, Cephalotaxus and Sciadopitys.

The forests of the two regions possess in common Magnolia and Æsculus, which are more abundant in species and individuals in America than in Japan. The Rhuses, or Sumachs, are very similar in the two regions, and so are the Witch-hazel and the arborescent Aralia. Cornus macrophylla of Japan is only an enlarged Cornus alternifolia of eastern America, and the so-called Flowering Dogwoods of the two countries are very much alike. The Japanese Walnut is very like the American Butternut, while, rather curiously, the Japanese Thuya and the two Chamæcyparis, the Piceas and Abies, resemble species of Pacific North America, a region whose flora has little affinity with that of eastern Asia. Torreya is common to the two regions; in America it is one of the most local of all our trees, while in Japan it is abundant in the mountainous regions of the central and southern parts of the empire.

Apart from the characters which distinguish related genera and species of Japanese trees from their American congeners there are many aspects of vegetation which make the two countries unlike. The number of broad-leaved evergreen trees is much greater in southern Japan than it is in the southern United States, there being fifty species of these trees in the former, and only twenty in eastern America (exclusive always of southern Florida), and the general aspect of the groves and woods at the sea-level, even in the latitude of Tokyo, is of broad-leaved

* Of the arborescent genera of Japan thirty are represented in Europe, and all, with the exception of Buxus, are also found in eastern America.

evergreens. The number of evergreen shrubs in proportion to the entire flora is much greater in Japan, too, than it is in America, and plants of this character grow much further north in the former than in the latter country. The small number of species of Pinus in Japan, and their scarcity at the north, is in striking contrast to the number and distribution of this genus in eastern America, where there are thirteen species, to only five in Japan (including one shrub). In Japan the Hemlock forms continuous and almost unbroken forests of great extent on the mountain-slopes, which are over 5,000 feet above the sea, while in eastern America this tree is rarely found except scattered in small groves or as single individuals through the deciduous-leaved forests. On the other hand, Picea and Abies, which in America form immense forests, almost to the exclusion of other species, wherever I have seen them in Japan, grow singly, or, in the case of Abies, in small groves on the lower border of the Hemlock-forests or mingled with deciduous-leaved trees. Picea Ajanensis is said, however, to form extensive forests in some parts of western Yezo, and Professor Miyabe informs me that in the extreme northern part of that island there are fine continuous forests of Abies Sachalinense. In northern Japan and on the high mountains of the central islands Birches are more abundant than they are in our northern forests; and the river-banks at the north, like those of northern Europe and Siberia, are lined with arborescent Willows and Alders, which are rare in eastern America, where these two genera are usually represented by shrubs.

The illustration on page 43 gives some idea of the general appearance of the great coniferous forests which cover the highlands of central Japan. In the foreground, Lake Yumoto, famous for its thermal springs, nestles 5,000 feet above the sea among the Nikko Mountains. The forests which rise from the shores of the lake are principally comprised of Hemlock (Tsuga divisifolia), among which are Birch (Betula Ermanni), Abies and Picea, Pterocarya, Cercidiphyllum and the Mountain Ash. In the dense shade by the shores of the lake grow dwarf forms of the Indian Azalea, Elliottia paniculata, our Canadian Bunch Berry (Cornus Canadensis), great masses of Rhododendron Metternichii, which in these forests replaces Rhododendron Catawbiense of the Appalachian Mountains, the dwarf Ilex rugosa, Clethra, here at the upper limits of its distribution, Panax horrida, and the dwarf Blueberries which inhabit mountain slopes in all northern countries, as well as the ubiquitous Bamboos.

The undergrowth which covers the ground beneath the forests in the two regions is so unlike that it must at once attract the attention of the most careless observer. In America this is composed of a great number of shrubs, chiefly of various species of Vaccinium and Gaylusachia, of Epigæa, wild Roses, Kalmias, dwarf Pyrus and Lycopodiums; in Japan the forest-floor is covered, even high on the mountains, and in the extreme north, with a continuous, almost impenetrable, mass of dwarf Bamboos of several species, which make traveling in the woods, except over long-beaten paths and up the beds of streams, practically impossible. These Bamboos, which vary in height from three to six feet in different parts of the country, make the forest-floor monotonous and uninteresting, and prevent the growth of nearly all other under-shrubs, except the most vigorous species. Shrubs, therefore, are mostly driven to the borders or roads and other open places, or to the banks of streams and lakes, where they can obtain sufficient light to enable themselves to rise above the Bamboos; and, it is the abundance of the Bamboo, no doubt, which has developed the climbing habit of many Japanese plants, which are obliged to ascend the trees in search of sun and light, for the Japanese forest is filled with climbing shrubs, which flourish with tropical luxuriance.

The wild Grape grows in the damp forests of Yezo with a vigor and to a size which the American species do not attain, even in the semi-tropical climate of the southern Mississippi valley. Actinidia arguta climbs into the tops of the tallest trees, and nothing is so un-American or so attracts the attention of the American traveler in Japan as the trunks of trees clothed to the height of sixty or eighty feet with splendid masses of the climbing Hydrangeas (H. petiolaris and Schizophragma), or with the lustrous evergreen foliage of the climbing Evonymus. Wistaria is represented, it is true, in eastern America, but here it is nowhere very common or one of the chief features of vegetation as it is in Japan; and the Ivy, a southern plant only in Japan, and not very common, helps to remind the traveler that he is in the Old and not in the New World. *C. S. S.*

Winter Birds in the Pines.

WE see many more birds in winter when it is very cold, and the ground is covered with snow, than we do in mild weather, for the snow forces them from the fields and vineyards, and from the covert of wild tangled undergrowth in the low Pines to our homes for food. I have observed some thirty species that visit our grounds during winter, and many others stay about the streams and along the coast.

The birds which accept our hospitality, and become more or less domesticated in winter, are the song-sparrow, the white-throated sparrow, the slate-colored sparrow, the English sparrow, the black-capped chickadee and the blue jay. The occasional visitors which mingle with our regular pensioners at the door are the fox sparrow, the tree sparrow, the goldfinch, the purple finch, the field sparrow and the meadow lark. Others which I see about the place that do not mingle with the feeding birds about the house are pine linnets, cardinal birds, vesper birds, bluebirds, quails, golden-winged woodpeckers, downy woodpeckers, brown creepers, winter wrens, Carolina wrens, cedar birds, crows, two or three species of hawk, screech owls and robins. Some observers report that they have seen the catbird in winter, but I have never been favored with a sight of him after November.

We can form some estimate of the importance of these birds to farmers and gardeners when we realize the amount of food a comparatively small flock will consume at our doors in inclement weather. They will accept almost any food when the ground is covered with snow, but they prefer millet-seed and coarse-ground corn and oats. The flock which I feed consumes daily a quart or more of this grain, besides much from the table. Very rarely does an English sparrow mingle with these birds. I have at last, by patient perseverance, banished these pests from my premises, and in the most humane manner possible. I have simply not allowed them to breed on the place. A few years ago they were here in great numbers, driving bluebirds and wrens and martins from their boxes. At last I had boxes made on purpose for the plagues with a hinged cover, and allowed each occupant to lay the requisite number of eggs, usually six, and commence to incubate, when I would destroy the eggs without disturbing the nest. At first the little simpletons, after making a great ado, would in a few days thereafter again lay eggs in the same boxes. Sometimes over thirty eggs were laid in one box. But even the English sparrow finally learns prudence. Each year they appeared in diminished numbers, and last season only one pair attempted to preempt a box, and they left after the first setting of eggs was destroyed, and the bluebirds and wrens had peace. They also tried building in the Cedars, and these nests were promptly removed.

Most of the birds that we see in winter are permanent residents; a few, however, come from the north, and remain until spring. Among these is the white-throated sparrow, our most handsome species. His throat is pure white, and white streaks are on the head, bordered on either side with dark reddish brown, with a bright yellow spot near the eye, and the back and wings are streaked with bright bay. He remains with us until he is in full song, and then departs in May to his northern home.

The fox sparrow is another handsome winter resident, something larger than the white-throat and more shy. His color is reddish, or bright rufous, on the back, and under parts lighter, streaked and spotted with brown. He makes a great commotion scratching among the dry leaves under Lilacs and other shrubs. He does not scratch like a chicken, but strikes with both feet at the same time, and then looks for what seeds or hibernating insects he may have unearthed. The tree sparrow is a beautiful aristocratic dweller among the winter birds, who retires to the mountains in summer, as his scientific name, Spizella monticola, indicates.

The slate-colored sparrow (Junco hiemalis), or snow-bird, as

it is usually called, is our most abundant species. He seems to be everywhere and a general favorite. He is lively and spirited, often making his larger comrades—white-throats and song-sparrows—stand aside while he takes his meals. He commences to sing in March, and before he leaves in April his music is heard on every side.

The purple finch remains with us until late in May, sometimes until early June. He is the dandy among winter birds; his full dress is a dark, rich crimson, while his mate is attired in simple drab. He is one of our best early songsters; his notes are loud and rolling. He never leaves us until he has helped to thin out the superabundant fruit-blossoms, especially of the Cherry and Apple. The pine linnet is an irregular visitor, but there is scarcely a winter that I do not see a flock now and then on the Pine-trees picking the seeds from the cones and uttering little plaintive notes, something like those of the goldfinch. As they scatter the winged seeds some of the party are sure to show their dexterity by catching them before they reach the ground.

Many of our permanent residents are also charming songsters, like the song-sparrow and the little field-sparrow—the smallest of all our species, more diminutive than the little chipping sparrow which goes south for the winter. And the vesper bird—what music is sweeter than his twilight song? And where can we find a more exquisite creature than the little goldfinch, which puts on his greenish drab or olive suit for winter and comes out in early spring in brilliant black and yellow? And now in full gala dress, before the company disband to attend to its domestic duties, he gives us his fascinating song. At such times these birds often congregate on an old Pine near the house, where their bright color is set off to the best advantage. Here they preen and prim, and sing incessantly, until one makes a move to adjourn, when all with one accord, in graceful, undulating flight, still singing as they fly, pass out of sight.

The merry little black-capped chickadee is always with us, but in winter we notice him more, when he is willing to be very friendly and to accept our hospitality; while he can easily manage for himself without any of our aid, still he is not averse to taking bits of meat which are fastened to the twigs of trees or pinned to the window casement, where his diminutive lordship watches us closely while he daintily takes his meal. He is often in company with the small brown creeper and a small black-and-white woodpecker, when together they search over the fruit-trees for hibernating insects and for the eggs of insects. Beneath the loose bark of Apple-trees they find the larvæ of many fat codling moths, which have spun themselves silken cradles in which to repose during winter, and if left to themselves they become chrysalids in the spring, and in early summer come forth as moths to work destruction to our apples. In the spring, when I look over my trees, I find but few of the larvæ or chrysalids. I have marked trees in the fall, when the larvæ were hibernating abundantly, and when spring came nearly every one had been destroyed. Many times I have seen the chickadee clinging to a twig of an Apple-tree, going all around it, head downward, picking at something which he evidently relished. On examination I find he was feeding on the eggs of the tent-caterpillar. These eggs, two or three hundred in number, are in a compact cluster, glued firmly around the twig, but the chickadee can loosen and eat them.

When we consider how many large birds remain with us in winter which are dependent in a great measure upon insects for their living, we may partly realize the immense number destroyed. In winter insects are in a condition most relished by birds, as now they are mostly in the egg, larva or chrysalis stage. Packard enumerates over a hundred different insects that feed upon Pine-trees alone, and a large number of these are found in the trees of New Jersey. The old Pine-trees near the house give me something of an idea of the ferreting work of these birds. Among the largest of these workers is the golden-winged woodpecker, which is about a foot in length, and very handsome he is with his rich golden wings and his fine head, a light fawn-color on the top and a brilliant red behind. On his breast is a broad crescent of black and a stripe of black on each side of the throat, and his rump is pure white. This is his general appearance as he flits around us, but in hand we find each feather has distinct and beautiful markings. He is somewhat shy, owing to the persistent persecution of sportsmen, still he soon learns whom to trust, and makes his nest in our orchards, often within a few yards of the door.

The blue jay is another elegant bird, a little smaller than the golden-wing. He is the gypsy among birds, camping with us in great numbers one winter, and the next somewhere else. He is so amusing and his talents so varied that he needs a whole chapter to do him justice. Crows are everywhere, and I am convinced that they find the larvæ of the rosebug. When the ground is not frozen they are often digging for something in the vineyards, but they are so shy that I cannot get near enough with a glass to determine exactly what they unearth.

The downy woodpecker is one of our smallest species, but he is nimble and strong. He is black and white, and the males have a bright crimson spot on the back of the head. He is abundant in winter, tapping the Pines and Oaks and fruit-trees around the house; no place escapes him where he thinks may lurk a hidden insect. The active little winter wren and the larger Carolina wren are both busy peering into crevices and beneath piles of old lumber and wood and around the base of trees, looking everywhere for hidden chrysalids and larvæ. Bluebirds and robins stay in the dense Cedar-swamps during severe cold, but are with us in mild weather. The silent beautiful cedar birds visit us in flocks, soon stripping a Cedar-tree of its berries, and then away as noiselessly as they came.

Vineland, N. J. *Mary Treat.*

Since the above was written, the bluebirds and robins, as if to disapprove my statement that they remained in the Cedar-swamps during the coldest weather, have come around the house in considerable numbers. Perhaps it is because they find it so much colder in the Cedars than they have done in former winters. The robins feed on the Cedar-berries, and the bluebirds are eating the fruit of the Japan Honeysuckle which climbs about the piazza. Very handsome both of them look against the sun, for their color is now at its best, and much more brilliant than it is in summer.

New or Little-known Plants.

Nymphæa gigantea.

THIS Water-lily is a native of tropical Australia, and is a plant of great beauty both in flower and leaf. The leaves on well-developed plants are large, peltate, dentate and light green above. On the under side they are strongly ribbed and of a vinous-purple color. The flowers, as shown in the illustration on page 41, from a photograph of a well-grown specimen, are large and well formed. The picture, however, fails to show the color and satiny texture of the petals, which, it will be noticed, are more blunt than those of N. stellata, of which the variety Zanzibarensis is the most familiar in gardens. The petals are white at the base, shading to a pure light blue at the ends. A large cluster of deep yellow stamens is in beautiful contrast. Altogether, in distinctness, purity of color and texture of petals, this may be considered the handsomest of the blue Nymphæas; it is, besides, one of the most persistent in flower, and is seldom without blooms while in active growth.

Like other tropical Water-lilies, it is grown successfully here in a number of gardens, but, though introduced many years ago, is comparatively rare, as not every one succeeds in its management. The main secret of success seems to be in keeping it moving, from the time it first breaks from the tubers. In a young state the slightest check will cause it to become again dormant. After it is well started and growing strongly, it may be transferred to quarters outside, where, once in flower, a succession can be depended on for the entire season. A sandy, rich loam seems to be its requirements as to soil. Like all tropical Nymphæas, this requires a fairly high temperature, and while our summers are usually warm enough to grow them successfully in the open, it is agreed that for the best results tanks with available heat are desirable. This species should not be confused with a white variety introduced lately as Nymphæa odorata, var. gigantea.

For the excellent photograph from which our illustration was made, we are indebted to W. W. Lee, Esq., Northampton, Massachusetts. The photograph of Mr. Lee's water-garden, a tank some forty-two feet in diameter, which accompanied this shows a wonderful collection of varieties, with Victoria regia in prominence, apparently growing in the great vigor required to produce the specimens as illustrated. The illustration has been reduced about one-third from the original photograph, in which the flower of natural size appeared rather more than ten inches in diameter.

Fig. 7.—Nymphæa gigantea, reduced one-third.—See page 40.

Foreign Correspondence.

The New Plants of 1892.—I.

THE new plants of last year, although more numerous than usual, do not include many of extraordinary merit; indeed, the number of really first-rate garden-plants among them is exceptionally few. I propose to deal now only with the plants for which English horticulture is responsible, deferring the introductions of foreign establishments for a subsequent letter.

ORCHIDS.—The new introductions among Orchids are fewer than usual, and the really good acquisitions fewer

still. Collectors have not been very fortunate in their discoveries, for I cannot name more than one of a first-rate character, Cypripedium Chamberlainianum. This plant has not yet revealed anything like the magnificence which the vendors, Messrs. F. Sander & Co., say it assumes in a wild state. It may, however, be expected to improve considerably under cultivation, and we may yet see the tall many-flowered scapes which characterize this species as seen by the collector in New Guinea. C. Exul is distinct enough, but wanting in attractions.

The new Cattleyas of last year have not yet fulfilled expectations. C. Alexandræ (Linden), instead of being "one of the most beautiful of all Cattleyas," has proved so far one of the poorest, the several plants which have flowered quite justifying this view. It is hoped that these are exceptionally bad varieties. C. Victoria Regina is "mixed." Messrs. F. Sander & Co. exhibited a plant of it in flower early in the year, which was not wanting in beauty, but, so far as I can ascertain, no one has yet had one that deserves to rank with first-rate Cattleyas. C. Schilleriana, var. Lowii, is very distinct in color, having lavender segments and a blue and white labellum, but it looks worse than the type in constitution, and the type is bad enough. C. Batalini is another of the same category, being like C. Schilleriana, with rose-purple flowers. C. Oweniana (Sander & Co.), C. Statteriana and C. aurea, var. Statteriana (T. Statter), are forms of C. labiata, var. Dowiana, of which there are now a considerable number. As was to be expected, some good varieties have turned up among the thousands of plants recently imported of C. labiata (Warocqueana), and some of these have received names, such as C. labiata, var. Sanderæ, C. labiata, var. alba, etc. Disa Cooperi and D. incarnata are very pretty in flower, but they belong to the wrong section of the genus to be of much value in English gardens. Bulbophyllum comosum (Kew), from Burma, is a pretty little species with the habit of a Pleione, and erect spikes bearing curved racemes of hairy white flowers, which develop in January and are sweet-scented. B. O'Brienianum (J. O'Brien) is another pretty little species from the Himalayas likely to interest those who love the smaller Orchids.

Calanthe Sanderiana (F. Sander & Co.) is a likely plant for the greenhouse, as it has the habit and sturdiness of C. Natalensis, but is larger in flower and deeper in color. Natal. Epidendrum Godseffianum and E. Watsonianum (F. Sander & Co) are evidently very robust-growing species with large-branched scapes of yellow and purplish flowers two inches across, but they are not likely to grow so well with us as they do in the Brazilian forests. The white-flowered Masdevallia Harryana, var. Gravesiæ, obtained by Mr. Sander from Mr. H. Graves, of New Jersey, is the best new Masdevallia of the year. There are three promising new Odontoglossums—namely, O. platycheilum, a new species, now in the possession of R. J. Measures, Esq., with creamy white Miltonia-like flowers, the large labellum colored soft pink, with spots of purple; O. Owenianum (F. Sander & Co.), a large-flowered new species from Colombia, with brown-spotted sepals and petals and a pure white labellum, and O. Wendlandianum (F. Sander & Co.), a new species, similar to O. blandum, the flowers white, with chestnut spots, the labellum spotted with purple. There are improved or distinct varieties of O. crispum and O. Pescatorei this year as before. The allied genus, Oncidium, also yields a trio of promising additions, all of F. Sander & Co.'s introducing: O. Rolfeanum, from Colombia, is a brown-and-yellow-flowered species of the Microchila section; O. Saint Legerianum, from south Brazil, is an ally of O. bifolium, with long scapes of bright yellow flowers remarkable for the size of the crest and its bright purple color, and O. Gravesianum, also of Brazilian origin, is one of the crispum or prætextum fraternity.

Phajus Sanderianus (F. Sander & Co.) I should call a form of P. Wallichii, which Sir Joseph Hooker, in *The Flora of British India*, makes to include P. bicolor and P. grandifolius. Stanhopea Lowii (H. Low & Co.) is a large-flowered species, not unlike S. ebarnea, I am told, but with purplish markings on the labellum. Sobralia Lucasiana (C. J. Lucas, Esq.), S. Breyeriana (Seeger & Tropp) and S. Lowii (H. Low & Co.) are all untried plants of apparently close affinity to S. macrantha. Spathoglottis Viellardii, var. rubræ (Sir T. Lawrence), is a dark-colored, large-flowered variety of a very good stove Orchid. Vanda teres, var. alba (Lord Rothschild), is, as its name indicates, a white-flowered variety of considerable beauty—so far the best of the new introductions.

Turning now to the hybrids of garden origin, we find an enormous number, certainly running into nearly a hundred. I must, in fairness, own to a prejudice against hybrids which have nothing to recommend them beyond their mongrel character. A good hybrid is a plant to be proud of, and there are some, a few, good ones among last year's productions. The best is, I think, Cymbidium Winnianum, raised by C. Winn, Esq., from C. giganteum and C. eburneum, exhibited a few weeks ago by Sander & Co., bearing six spikes of large beautiful flowers, creamy white, with blotches of red-brown on the labellum. Cattleya leucoglossa (C. fausta × C. Loddigesii), C. Philo (C. iricolor × C. Mossiæ), and C. Minacia (C. Loddigesii and C. labiata) are the best of the hybrid Cattleyas flowered this year by Messrs. J. Veitch & Sons. The St. Albans nurserymen have also produced two good hybrids in C. Burberryana (C. imbricata × C. superba) and C. Amesiæ (parentage not given). A hybrid named C. Baroness Schrœder (C. labiata, var. × C. Jongheana), raised in the garden of Baron Schrœder, is also deserving of special mention.

There are over forty new hybrid Cypripediums among the certificated plants of last year. The principal raisers of these were Messrs. J. Veitch & Sons, F. Sander & Co., and Messrs. Pitcher & Manda. There are among them some curious combinations, such as C. Brysa (C. Sedeni × C. Boisserianum), C. Chrysocomes (C. caudatum × C. conchiferum), C. Cowleyanum (C. Curtisii × C. niveum), C. Evenor (C. Argus × C. bellatulum), C. Juno (C. Callosum × C. Fairreanum), C. Lawrebellum (C. Lawrencianum × C. bellatulum), C. Telemachus (C. niveum × C. Lawrencianum) and C. Vipani (C. niveum × C. lævigatum). I am informed that, strange and incomprehensible though it may appear to outsiders, these hybrid Cypripediums are much sought after by certain amateurs, and often realize very high prices. With a genus like this it would be worth while to self-fertilize the flowers and try what effect selection and cultivation would have on the size and colors of the flowers of the later generations.

Dendrobiums have yielded D. dulce (D. Linawianum × D. aureum), D. Wardiano-japonicum, D. striatum (D. japonicum × D. Dálhousianum), D. enosmum leucopterum (D. nobile × D. endocharis), D. Adrasta (D. Pierardii × D. superbum) and D. Euryclea (D. lituiflorum × D. Wardianum). These are all Veitchian productions. Messrs. F. Sander & Co. have also been successful, having flowered during the year D. Rolfeæ (D. primulimum × D. nobile), and Sir Trevor Lawrence has bred D. burfordiense from D. Linawianum and D. aureum; Messrs. Veitch also made this same cross, calling their plant D. dulce.

Lælio-Cattleya Marriottiana (L. flava × C. Skinneri), L. C. Phœbe (L. cinnabarina × C. Mossiæ), L. C. Aurora (L. Dayana × C. Loddigesii) and L. Latona (L. cinnabarina × L. purpurata) are other hybrids of promise, for most of which we are indebted to Messrs. J. Veitch & Sons.

Phalænopsis Amphitrite (P. Stuartiana × P. Sanderiana), raised by F. Sander & Co., is a handsome hybrid of sturdy constitution, and the same may be said of the Veitchian hybrid, P. Artemis (P. amabilis × P. rosea). The production of further crosses between Cattleya and Sophronitis by Messrs. Veitch is only what we might have expected to follow on their splendid success in producing Sophrocattleya Batemanni. I have said elsewhere that the fact of these plants intercrossing is a conclusive proof of their near relationship. Still the boldness of the attempt deserves all praise, more particularly as it has given us already several beautiful hybrids. Sophrocattleya Veitchii (Sophronitis grandiflora × Lælio-Cattleya elegans) and S. Calypso

(Sophronitis × C. Loddigesii) are two beautiful hybrids. Breeders might do worse than make this same cross for the sake of the plants it yields, as we shall have to wait a long while before Messrs. Veitch will have a stock of Sophro-cattleyas to dispose of at, say, a guinea apiece.

Zygopetalum leucochilum (Z. Burkei × Z. Mackayi), a sturdy plant, remarkable for its large white labellum, is another Veitchian production of some merit. This list will be continued next week.

London. *W. Watson.*

Cultural Department.

Irises and their Cultivation.—VI.

IRIS PSEUDACORUS and I. fœtidissima, the British Gladwin, are Flags, appreciated in wild gardens. The yellow flowers of the former are not very pure in color, but in suitable damp places the plants are effective. The flowers of the latter variety are dull, but are succeeded by well-filled pods which show rows of red seed as they burst, when they are striking objects. The milk-white Iris of Florence (I. Florentina), besides being a plant of remarkable beauty, has the distinction of being the only member of the large family which has any important commercial value. The dried and cleaned rhizomes of this Iris are an important article of commerce under the name of Orris-root. In the form of powder it is used as a dentifrice and for sachets. Oils are both expressed and distilled from the roots, which, with alcoholic tinctures of the same, are largely used in the manufacture of perfumery and soaps. Its special value being to simulate or strengthen the more expensive perfume of violets, the essence of violets without some admixture of orris or cassie (Acacia Farnesiana) is a rather rare article. This Iris prefers moist spots.

Iris Siberica and its varieties have long been favorite garden-plants, growing with extreme vigor in an ordinary garden-border, not too dry, which place they prefer to a wet one. The type has purple flowers, veined white, very freely produced, and the foliage is narrow, rigid and abundant, about two feet long. Variety flexulosus has white flowers with crisped petals. Variety hæmatophylla has purple flowers, and the young leaves are tinged with red. This is a synonym of variety Orientalis, but the plant grown here with the latter name is a variety having very dark purple, almost blue, flowers, and leaves of the normal type.

Iris Orientalis (species) is that known in gardens as I. ochroleuca, or I. gigantea. It is a remarkably tall-growing and beautiful-flowered kind with stout rhizomes. The flowers are white, flushed with yellow on the falls. This is one of the best of the tall kinds. Others of this class worthy of cultivation are I. monnieri and I. aurea, both with yellow flowers of pure color and seemingly not particular as to location. This trio of tall-growing kinds have rather long narrow falls and inconspicuous standards, and hence have a grace of their own quite distinct from that of the Japanese kinds. The two latter kinds have not proved very free of flower in my borders. There are a number of other rhizomatous kinds in the same borders which are possibly as effective, but they have not spoken to me as yet, or I have failed to catch their special characteristics. The flowers of the Iris do not quite round the entire year, but there are several winter Flags which will prove interesting at that season. I. fimbriata (I. Chinensis or I. Japonica) is the well-known evergreen-leaved greenhouse-plant with lilac flowers, crimped on the edges of the falls, and borne in racemes on graceful stems. This thrives well in ordinary greenhouse temperature potted in a small amount of sandy loam, with abundant drainage. The flowers are fugitive, however. I. alata (I. scorpioides) is an Algerian bulbous species, also much grown in green-

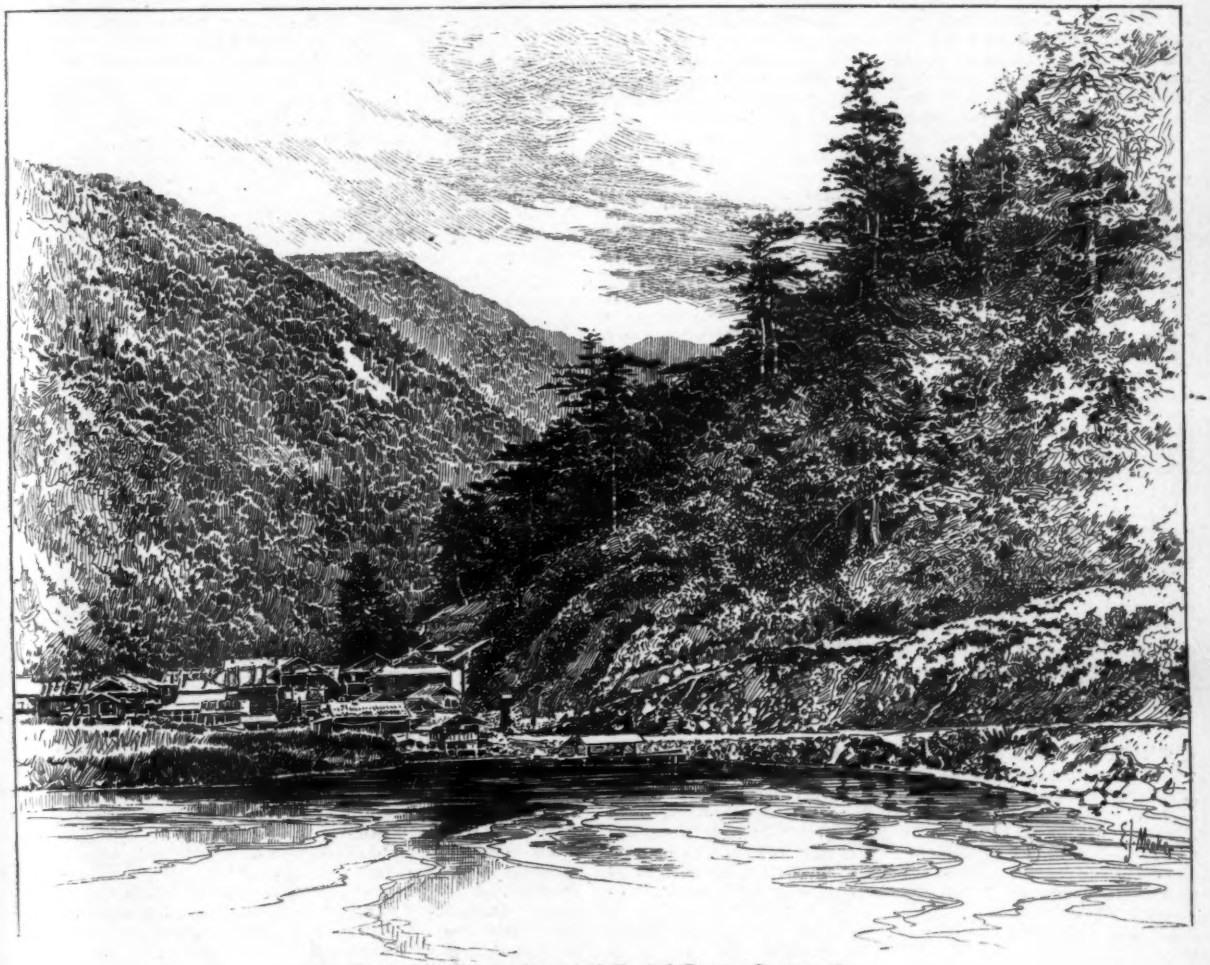

Fig. 8.—Lake Yumoto, Japan, with Hemlock Forests.—See page 38.

houses, and of this there are several varieties, white and lilacs. Except that it requires a rest from July to October, its culture offers no difficulties.

The most interesting winter Iris seems to me to be I. stylosa, which, though Algerian by birth, is apparently hardy here. This by precedence is I. unguicularis, which name, as Professor Forster has remarked, has the advantage of containing five more letters, and being more difficult to pronounce. It is, however, a plant which is more satisfactory under protection, though only requiring a moderate temperature to bring it into flower in December or January. It is necessary to have it well established in pots for such treatment, and it will require attention and some stimulants in the early year to keep it moving. There are several varieties of this. Var. Speciosa, now in flower with me, is rather light purple, with white and yellow markings on the falls, and the standards, which are erect, are suffused with a coppery bronze on the inner base.

Since the appearance of this series of notes I have had several communications, seeking, with perhaps unconscious sarcasm, cultural directions for the Iris, and perhaps a few more notes in that direction may be useful, though, unless otherwise noted, the plants before mentioned demand the simplest possible treatment. Many, or most, of the rhizomatous kinds are evergreen, where the leaves are not killed by frost, and may be moved at any time, but, preferably, it should be done after flowering and before the ground commences to cool off in the fall. They can be secured at any time in the spring or fall from the dealers, and if care is used in setting out, few of them will give further trouble until they have exhausted the soil, which they do somewhat rapidly. Those with thick rhizomes are apt to be bruised in transportation, which will cause them to rot, and they should be carefully watched, and the decaying part cut out as soon as it appears, after which they should be planted in sand till they recover. These, like other plants, are better planted, as some one has said, with a spade. In other words, in a good, broadly, loosely worked space such as a spade would open. Spread out the roots well and work loose earth among them, with the thick rhizomes just at the surface. Those with short underground rhizomes should be planted so that the buds are near the surface. As these often make a matted mass of fine roots, difficult to spread and separate in the earth, it is well to cut up such masses to single eyes, and plant with a space between. Such masses of roots can otherwise often be successfully treated by washing out and throwing sand between while wet. This will help to keep them separate and enable one to plant satisfactorily. In the outdoor garden, where one is entirely at the mercy of the elements, careful planting is usually of more importance than after-cultivation, for after planting, nature and the plants have it mostly out between them. However, we all like to think that we are masters even in the garden, and a judicious use of water and manure, as observation seems to indicate, will help the Iris, as well as other plants, and a loose state of the soil will tend to increase them rapidly.

Elizabeth, N. J. *J. N. Gerard.*

Autumn-flowering Lilies.—I.

STRICTLY speaking, the sub-genus Archelirion consists of three separate groups, Lilium tigrinum, L. auratum and L. speciosum, each differing considerably, either in the shape of bulb or flower, far more than in the case of other sections. All the Archelirion Lilies, as far as they are known to us, are natives of Asia, principally of Japan and China, where they are collected by the natives for food, but for some years large quantities have been cultivated and exported, mainly to Europe and America.

LILIUM TIGRINUM GROUP.—L. tigrinum has a stem from three to five feet in height, greenish purple or dark brown in color, and pubescent; the leaves deep green, scattered, and the lower ones enlarging more to the apex. It is one of the few bulbous species bearing bulbils in the axils of the leaves, which adhere at first firmly to the stem, but as they grow larger assume a more separate existence, until, on maturity, they drop to the ground in the autumn and soon produce little rootlets and leaves. There are only two other truly bulbiferous species of Lilies besides this, namely, L. bulbiferum and L. sulphureum (L. ochroleucum). L. tigrinum flowers from the end of July right through August and up to the middle of September. The variety, Splendens, differs from the type in the much broader, deep green and shiny leaves, a dark brown ebony-like stem, and much larger and brighter-colored flowers. It is of vigorous growth and later in bloom. This I consider is the best of the Tiger Lilies. L. tigrinum Fortunei differs principally from L. tigrinum by the lighter-colored flowers, less recurved segments, larger and lighter spots, narrow leaves and downy stem. It blooms a week or two later than the type, and a few days before Splendens. On account of its tall, vigorous growth, in the first, and sometimes also in the second, year after importation (for the stem grows from six to eight feet high, and produces a great number of flowers), it is erroneously called Giganteum, but when grown for a few years it loses this character, and becomes simply Fortune's Lily. I have found imported Tiger Lily bulbs always of this variety, but never of the form Splendens, or the type. The form Fortunei is to all appearance the most common, and has undoubtedly a wide distribution. A friend sent me a few bulbs of it from a then unexplored part of Burma, which he bought from Chinese merchants, who sold them for food; and he, having only a slight knowledge of Lilies, sent them to me as a new kind. L. tigrinum erectum is a very rare and distinct form, but, as far as I know, not now in cultivation. The flowers are erect, but the plant is of rather weak constitution. The double-flowered variety is like Fortunei, except in the perfect double flowers of camellia shape—a most handsome and vigorous-growing form, and a native of China and Japan. It flowers the last of all, lasting from September to October. Tiger Lilies are easily propagated by the bulbils; in fact, under favorable conditions, they sometimes become a perfect weed. L. jucundum is an almost real Tiger Lily, with the exception of not being bulbiferous. The bulbs differ but little from those of L. tigrinum, only being more compressed. The stem is from four feet to five feet high, covered with white down, and the leaves scattered, linear and twisted. The color of the flowers is bright red, dotted brown. Among these are one or two very distinct forms. L. Leichtlini, with yellow flowers, spotted with brown, might rightly be put here, having the whole character of L. jucundum, but at the same time it might be classed with the Martagon Lilies.

LILIUM AURATUM GROUP.—Lilium auratum has a stem from two to six feet high, deep green, smooth tinted purple, rather slender, leaves scattered, short-stalked, lanceolate-acuminate, deep green, shiny and smooth; the lower ones are shorter and much narrower than the upper ones; the perianth is from four to eight inches long, segments fulcrate, one to two inches broad in the middle, white streaked with yellow and dotted with purple. It is strongly scented—a most variable Lily, with many distinct and beautiful varieties, and a native of Japan, flowering from July till October. The most distinct forms are: Wittei, having a small, light-colored bulb, very slender stem, growing from two to three feet high, and small, milky-white flowers, streaked yellow, but without spots. Rubro-pictum has narrow, long leaves, and a smooth, lurid, purple-tinted stem, flowers of medium size, very numerous, white, tinted outside with greenish purple, and streaked faintly with red, also enriched with large, crimson dots. A late-flowering and very pleasing form. Rubro-vittatum has a slender stem, about three feet high, green, tinted with purple, the leaves lanceolate, dark green, tinted purple and very smooth; the flowers are large, white, streaked deep crimson. This I consider to be the most beautiful, not alone of this group, but of all the Lilies. As far as constitution is concerned, it is far more satisfactory than the common L. auratum. Platyphyllum has a light or deep green stem, tinted with purple, the leaves broad and lanceolate, the flowers large, much expanded, white, the exterior tinted purple, the interior often tinted and streaked with sulphur, and dotted with maroon—a vigorous-growing and beautiful form. The stem is very stout, and often attains a height of from six to eight feet, especially the second year after importation. The first year it is much dwarfer. It is the most vigorous variety of this group, and a native of Japan, flowering in August and September. Virginale differs but little from Platyphyllum as far as the general habit and shape of the bulb are concerned; the principal difference lies in the large, white flower, which is not spotted as the preceding, but has a pale yellow band running through the middle of each of the inner segments. It is a very rare form. The variety Wittei, a much more plentiful variety, is usually sold for Virginale. Besides these varieties there are others, but they are not quite so distinct. Any one buying a number of imported bulbs of L. auratum will find an almost endless variety among them. Some are of dwarf growth, and have narrow, long leaves, the plants usually early-flowering, with flowers almost as good as those of Platyphyllum. In Rubro-pictum they are more or less spotted, and tinted purple or crimson. Others, again, have a tall, slender stem often fasciated, while some have curly leaves and small flowers, which are produced late. These last two forms are of weak constitution and are short-lived. The dwarfer, long or broad-leaved forms are the most amenable to culture, while the tall, late-flowering, curly-leaved varieties are the most difficult to

keep after the first year. In fact, we have yet to learn how to cultivate L. auratum successfully. What becomes of the many thousands of imported bulbs every year? In some localities from sixty to seventy per cent. of imported bulbs will live and grow for a number of years, while in other localities they seldom survive beyond the second year, evidently neither soil nor climate being suitable. The kind of soil, though not the same, but approaching that of its native habitat, would be neither too heavy nor too light or dry, and then this bulb likes plenty of moisture, though not stagnant moisture, and shelter from wind or sun. I remember a bed in a Continental garden containing bulbs of the first importation that ever reached Europe. The soil was sandy, containing much humus deposited by a river, and though not actually damp it could not be called dry. This bed was not disturbed for more than eight years, except that now and then a bulb was lifted. Unfortunately, the severe winter of 1890 annihilated this bed completely, as it was left uncovered, although sheltered by conifers against the north and east.—*G. Reuthe, in Gardeners' Magazine.*

Hardy Perennials for Sub-tropical Effect.

IT is a matter of surprise to me that so little attempt is generally made to produce sub-tropical effects with hardy plants, for variety of material is not wanting. Situations where such effects can be used to advantage are in every large estate and public park, while in private places of small extent a spot for the purpose can often be found.

One cannot reasonably expect the highly colored and richly varied foliage, often of gigantic size, which can be attained with purely tropical foliage and which requires the peculiar soils and conditions of a warm climate; and yet a showy effect, quite distinct from that usually produced with hardy material, can often be had by an appropriate grouping of certain hardy species which show marked difference from the prevailing characteristics of the vegetation of a temperate climate.

In places of large extent and to produce broad effects, the list of suitable hardy plants is by no means limited; the large broad-foliaged and tall-growing sorts can be used in quantity, while medium-sized sorts can often be well grouped with them. Bocconias, Aralias, Arundo donax and varieties, Polygonums, Inulas, Helianthuses, Silphiums, Rheums, Acanthuses, Heracleums, Centaureas, Eryngiums and other coarse-growing sorts that can have room to develop, can be made most effective. Groupings of this sort are possibly best made where there are heavy backgrounds of trees, especially when placed in the deep bays and recesses that are so commonly found in places where large ornamental plantings have matured. The plants named are, from the nature of their growth, gross feeders, and, to give the best effect, must each year receive good cultural treatment, and they should be set so that they will not suffer from the shade of the trees. These coarser-growing sorts should be mainly used apart from less vigorous varieties, which might otherwise be crowded and overrun.

Where it is desirable to extend the varieties, Bambusa Metake, Echinops in variety, Eulalias, Gyneriums, Erianthus ravennæ and Verbascums can be used as plants of medium size to extend the variety of color and form of foliage and give contrast in habit. Among the plants named are several which can be used as single lawn specimens, such as the Eulalias, Acanthuses, Rheums, Erianthus and Gyneriums, and here the cultural skill of the gardener will be well repaid. Wherever dwarfer kinds than those mentioned are desirable, selections can be made from the Tritonias, Megaseas, Artemesias, Dicentras, Epimediums, Funkias, Hemerocallis, Yuccas, and the like, and where Ferns are suitable, the Osmundas, Struthiopteris, Woodwardias and Dicksonias make a good list to choose from.

The effect of large groups is enhanced by a foreground of lawn, and, except where the smaller sorts are used, the view from a moderate distance is best. I find that too much variety is likely to be attempted; this mars the general effect by lessening the individual attractions of each.

Where there is water for aquatics, the deeper portion can be occupied with the Nymphæas and Nelumbiums, the shallows with Pontederias, Sagittarias, Calla palustris, Nuphars, Typhas, and the banks with Scirpus, Juncus, Acorus, Eulalias, Carex, Equisetums, Eryngium aquaticum, Bamboos, Elymus glaucus and Japanese Iris. Here also can be used to advantage the Gunnera, Saxafraga cordata, Funkias, Hemerocallis and Ophiopogon in their various forms, taking care, of course, to prevent the submergence of these plants at any time.

These notes are but hints as to the use of plants to produce sub-tropical effects; the study is capable of great elaboration in grouping for effect or in selecting single specimens for the lawn. There is a great variety of color among the sorts noted; the bright glossy greens of the Acanthuses, Megaseas and Morinas; the light greens of the Hemerocallis, Rheums, Polygonums and Centaureas; the glaucous hues of the Bocconias, Elymus glaucus and Yuccas, and the bright silver and golden variegated foliaged forms of Eulalias, Arundos and Sweet Flag. Of course, the flowers in their season are items of importance, though the general acceptance of the term sub-tropical relates more especially to effects of foliage.

Reading, Mass. *J. Woodward Manning.*

The Shrubbery in Winter.

THE value of shrubbery to relieve the monotony of the winter landscape deserves more consideration than planters have usually given. Heretofore the evergreens have been the main reliance for winter effect; but we have three or four shrubs, which, if used judiciously, will produce a marked influence in relieving the chilly and dead-white effect of mid-winter. For early winter nothing compares with our American Evonymus. The European variety is very pretty, with yellowish red berries; but our native sort is a brilliant scarlet. The whole bush, after the leaves fall, is a flame of fire and would appropriately be named by the people the Burning Bush. The European Evonymus may be grown even thirty feet high, as a small compact tree; but I have not found it as hardy as the native, which rarely rises more than ten feet, and is prettiest when grown as a bush. For bordering a group of evergreens the nurserymen offer dwarf varieties.

The Barberry, for some reason, is neglected as a lawn shrub. I rarely find it, even in somewhat extensive grounds, if we except the inferior purple-leaved sort. By all odds the most useful Barberry is the European Berberis vulgaris. This has become quite at home in our country and can be found all along the Atlantic states in pasture lands. Among the best five shrubs for general planting, I should certainly name this one. The Evonymus is spoiled by severe freezing, but the fruit of the Barberry endures until spring. These two shrubs for upland planting, and the red-barked Cornus for lower grounds, create a rich diversion of color that we should not lose. The Dogwood can easily be grown in large masses of twenty or thirty feet diameter. The fruit is white and appears in the summer; but the bark is exceedingly rich from the time leaves fall until they put out again in spring.

Clinton, N. Y. *E. P. Powell.*

The Forest.

Tree-planting on Mount Hamilton.

THE University of California has a tract of 2,600 acres of wild land upon Mount Hamilton, including the site of Lick Observatory. I went there last December to study the place with a view to some tree-planting. My visit proved extremely interesting and suggested further possibilities in the direction of a forestry station, that could not but prove of value to the entire Pacific slope.

Previous attempts to plant trees, at an elevation of more than 4,000 feet, on the crest of Mount Hamilton, have been somewhat disastrous. In 1889 about fifty trees were sent from the University gardens to the mountain, and again, in 1890, but too late in the season, a large number of trees were planted, few of which remain. Cork-bark Elms and California Soft Maples are the most promising deciduous trees. Sequoia gigantea, Libocedrus decurrens, Thuya gigantea, Austrian Pine and a few other conifers, such as the Monterey Cypress and the Monterey Pine, have done fairly well. The most promising tree of all is the Sequoia. The Redwoods died; they are entirely unsuited to the locality. The total coniferous tree-planting of 1890 consisted of three hundred and sixty trees of six species, all but one natives of the Pacific coast. About fifty fairly healthy trees, and perhaps as many more that may live, now remain from the plantings of both 1889 and 1890. In every case it was necessary to blast out a hole in the rock and fill it with earth hauled from the gulches. The winds are very strong on the summit and the summers are dry and hot. The water-supply is sufficient to give trees a start, but of course they must be species that are well adapted to extremes of heat and cold, moisture and drought, for irrigation can only be upon a small scale and for a short time.

The nature of the horticultural problems offered by the more rocky and arid portions of the mountains can be understood better from the following notes taken from the publications of

the Lick Observatory: Since 1880 the least annual rainfall has been about thirteen inches; the greatest has been more than fifty-eight inches (from July, 1883, to June, 1884, inclusive). The mountain generally receives thirty-three inches or upward. There is evidently rain enough for a great variety of plant-life. The "dry months" are said to be May, June, July, August and September, but in 1883 more than seven inches fell in May, in 1889 more than three inches, and during eleven years only one May was entirely rainless. The lowest temperature during eleven years' observation was eleven; fourteen and sixteen occur nearly every year. Snow falls on the peak, but soon melts, and some years there is no snow at all.

The heads of the ravines, and small plateaus nearest the peaks, fortunately offer much easier problems to the planter. There is more soil there, the force of the winds is somewhat broken, and the rays of the summer sun are less perpendicular to the plane of the slope. There are large Oaks, in fact, quite a forest of them, and one hill-side has been plowed and cultivated. One plateau of five acres would make an excellent Apple orchard; another, higher up, is suited to a collection of mountain species of conifers. The surface should be broken, and the grass and weeds kept down by cultivation, as, otherwise, small trees would lack moisture. Several small plantations could be established within easy walking distance of the Observatory, and will give better results than the efforts to grow trees upon the rock platforms of the mountain. The need of shade and shelter around the buildings upon the peak is most pressing, and the effort to establish a few more trees of the hardiest species there must not be neglected.

Hitherto all the planting attempted has been at, or near, the top of the mountain. The real possibilities of the large, and, for many uses, very valuable tract of wild land owned by the University, have been neglected. The tract consists of 2,600 acres, covering a range of 1,500 feet in altitude, from about 2,700 feet above the sea to the crest of Mount Hamilton, 4,200 feet high. By a comparatively slight additional expenditure the reservation could be increased to 3,000 or 3,500 acres, and this would greatly add to its future value as an experiment station for hardier fruits and forest-trees. In parts of Italy the Olive thrives at an elevation of 3,200 feet, and in Algeria at 4,800 feet, while bearing orchards are not uncommon at 3,000 feet above the sea. The Olive requires thorough cultivation, but needs no irrigation in the Mount Hamilton district, where the rainfall is sufficient. It endures summer heat of from 100 to 120 degrees, but, as before stated, the winter temperature must not be less than fourteen degrees.

From both the botanical and the horticultural standpoint, this tract of land on Mount Hamilton is one of the most interesting areas to be found in the entire Coast-range. It ought to be utilized, and portions of it should in time yield a very considerable income—probably enough to pay the expenses of planting the other parts.

There are many warm "flats" containing rich soil and flowing springs; here orchards of Olives and the deciduous fruits will thrive. Peaches, Apricots and Prunes are growing well in similar localities. About 3,200 feet would probably mark the natural limits of such orchards, but the hardier Apples and Pears could be planted higher up on the mountain. If five or six hundred acres prove well adapted to these cultures, it would be all one could expect. Possibly, in the course of time, Olives could be established over a large area of the rocky slopes.

For pure forestry treatment, after the best European methods, with modifications to adapt them to California conditions, there are a thousand or more acres that can be covered eventually with as fine a coniferous forest as that which clothes the base of Shasta. Ultimately, with sufficient funds to carry on the work properly, every part of the tract, except a few precipices too steep for trees to obtain a foothold, can be covered with vegetation. This, the Director assures me, would not injure the astronomical value of the Lick Observatory, but would undoubtedly steady the atmosphere and improve the general conditions.

The creation of profitable orchards upon the suitable portions of the 2,600 acres belonging to the Mount Hamilton reservation, and of equally valuable forests of Sugar Pine, Yellow Pine and Sequoias, will undoubtedly be the task of a lifetime, and it will be hard to find men who combine the requisite knowledge and energy for its accomplishment. But I know of no better place for a forestry station of the first rank to deal directly with the practical problem which the state and national government are just beginning to recognize—the utilization of our rough lands, the reforesting of denuded mountains.

Berkeley, Cal. *Charles Howard Shinn.*

Correspondence.

Favorite Flowers.

To the Editor of Garden and Forest:

Sir,—I wish to say a few words, not about the popular flowers with which people are often strangely enamored until a more recent novelty causes them to be forgotten; such flowers are double Dahlias, Fuchsias, Cacti, and, at the present moment, the Chrysanthemum. I would speak of the flowers popular among village folk, among the primitive dwellers on the mountains and in valleys far remote from the stir of city life. With us, in Switzerland, le Rosace des Alpes (Rhododendron ferrugineum and R. hirsutum) has been in favor for a long period. This is, without doubt, our national flower. It ornaments our coins, and is largely used in decorations. But on inquiry as to whether this popularity is of old standing, I find, on the contrary, it is of comparatively recent date. Among our shepherds the old name of Rose des Alpes is simply "le buisson des poules," the wild bird's thicket, because its densely clad branches afford excellent cover to the Alpine grouse, the heath-cock, etc. So prosaic a name fails to show that the common people of old held it in the slightest favor from an æsthetic point of view. One of the earliest praises of the Rhododendron is found in the immortal poetry of Albert Haller, Les Alpes (1729), where he writes, "Smaragd und Rosen-glühn auch auf zertretner Heide," taking care to say in a note that he refers to Ledum foliis glabris flore tubuloso and to Ledum foliis ovatis flore tubuloso, which in ante-Linnæan nomenclature designate our varieties of Rhododendron. The first author who makes mention of the poetic name, "Alpenrose," is the celebrated Clusius, in his charming work, so beautifully illustrated, *The History of some Rare Species in Hungary and Austria*, printed by Plantin at Antwerp in 1583.

The Edelweiss, the Leontopodium, so much the rage at present, coveted by every traveler who makes his tour of Switzerland, so sought after, that year by year a dozen rash climbers lose their lives by falling from steep slopes where they hope to find it. This plant, whose flowers are insignificant, and whose sole attraction lies in a rosette of fluffy bracts surrounding a short corymb of dark flower-heads, enjoys a wholly artificial popularity in Switzerland. Previous to the publication of the novel *Edelweiss*, by the German author, Berthold Auerbach, it was little known in our country. From a remote period its popular names among the peasantry were either Rührkraut (specific against dyspepsia), or Katzenpfoetchen (Cat's-paw). Thus we see that, before the advent of exaggerated worship of this little composite, the common people held it in no æsthetic esteem, but only recognized a useful medicine in the nature of Camomile, or found in the flower the likeness of a cat's-paw. Clusius, in the work already cited, gives an excellent figure of this plant and says that, according to Josias Simler, it is called Wullblume, that is, woody flower; but he makes no mention either of its popularity or of its having been put to any use by the people. It was only about 1850 that a change in public opinion arose in Switzerland, and the name Edelweiss, made up of the adjectives noble and white, had doubtless its origin in the eastern Alps, in Bavaria and the Tyrol, where, it appears, the young men in the villages have long had the custom of offering bouquets of this flower to their fiancées. The popularity of the Edelweiss has since, without exaggeration, become a public calamity, for every summer sees numerous deaths caused by this ill-omened plant. There are always rash young men, who, for the purpose of gathering a flower on which they set such undeserved value, venture on steep and very slippery slopes, the favorite habitat of the Leontopodium, to fall into the depths below and find a horrible death. What has contributed, unfortunately, to the renown of this plant and to the seeker's enthusiasm, is the fatal idea in some cantonal governments, under pretense of protecting the plant, of forbidding its collection with its roots. It would have been infinitely better to have eradicated it entirely from localities frequented by travelers, and so have removed temptation, for the plant is much overrated. In the first place, it is by no means rare. Every Swiss botanist knows of regions where the Edelweiss abounds, covering accessible and safe slopes, and furnishing its flowers in unlimited quantity. The neighborhood of Zermatt and the Tessnio are such localities. In addition, the Edelweiss, not being an endemic plant, or one confined to Switzerland and the Alpine chains, cannot be called a characteristic product of our mountains. On the contrary, it is one of the plants of the Siberian steppes, where it is widespread, and only finds its last station in the European mountains, where it occurs in the Pyrenees, as well

as in the Apennines, and the Alps properly so called. Moreover, its artistic value is at least doubtful. It does not possess a graceful, perfumed, delicate-colored corolla, but has the sole merit of resemblance to an irregular star cut out of a bit of flannel. In reality, the imitation Edelweiss, fashioned from white flannel, is perfect and could not be improved upon. Therefore, why should people kill themselves for a plant neither rare nor essentially Alpine, and which any skillful dressmaker can so faultlessly imitate? It is high time to abandon this craze. It should also be remembered that the Edelweiss is very easily cultivated, that it is raised easily from seed, and that the flowers are as fine, or nearly as fine, as those gathered on Alpine heights. Any one can grow, in a small pot, the quantity of Edelweiss sufficient for his needs.

If inquiry is made of our shepherds what, other than forage plants, are their favorites, the following is learned, but not without difficulty, for they do not talk freely with strangers. The plant held in the highest esteem, nay, even venerated, is certainly l'Allium Victorialis, L., by no means common in Switzerland. Its root, covered with fibrous transverse-veined envelopes, is reputed a sovereign charm against every species of witchcraft, and there are few châlets under whose thresholds fine roots are not hidden, or in whose interiors, by dint of searching, small bundles of the same are not found concealed. The names of this plant are characteristic and of very great antiquity; "Allermannsharnish," that is, the armor of Allermann, who was probably some German god; and "Neünkernler," that is, root with nine coverings, because of the envelopes already mentioned.

Another plant which every mountaineer gathers and places in his hat, but which is carefully put in a box at home as a sovereign remedy, is Artemisia mutellina, Vill., a charming species, several inches high, covered with shiny and silvery down and bearing little yellow flower-heads. This rather rare plant, found only on slopes much exposed to the sun, at an elevation of 7,000 feet and higher, has a very powerful perfume and an exceedingly bitter taste. Taken as tea it is an excellent sudorific, and generally affords great relief in colds and neuralgia. A friend, one of the foremost Swiss geologists, follows this peasant custom, and always keeps on hand a supply of this plant to serve in case of need. I have seen a tourist, nearly exhausted by the great hardships of an excursion on the Treftjoch, in Valais, quite restored in a single night by a strong dose of "Genipe" tea, which I was able to furnish his guide from the collections I had made that day.

Another much-sought-for flower, and that solely for its beauty, is the "Speick," so called by the Tyrolese. Universally known and admired, it is in reality the national flower of the Tyrol, giving their name to many localities, for example, "Speickleiten," hill-side of the Speick; "Speickecken," point of the Speick, etc. In reality no plant merits its popularity more than this, the Primula glutinosa, for it is the most beautiful and odoriferous of its kind. It is not widely diffused, but in its habitat is found in little close-growing clusters covered with blooms, and the entire plant is enveloped with a glutinous matter so delicious in perfume that one never tires of it. This perfume, a mixture of balsam and vanilla, is agreeable beyond words. Its flowers, in close little heads, are dark violet, verging toward indigo, rich and beautiful in form. A bouquet of "Speick" is the most glorious thing all Alpine nature can show, and the embodiment of truly original beauty. When presented by a Tyrolean to his lady-love it is a genuine declaration of love, admiration and endless homage. This Primula, not found in Switzerland except in the mountains of the lower Engadine, becomes more common in the eastern Tyrol, and extends into the Austrian ranges and those about Salzburg. I have found it on Italian soil also in the Passo di Gavia, leading from the Val Canonica to Santa Caterina, in the Bernese Alps. It was found growing beside the Ranunculus glacialis with very large snow-white corollas, the rosy flowers of the Primula œnensis, the Androsace glacialis, Wopp., and the intense blue of the Gentians. It was a vision of beauty. I have brought it home to my garden, but I fear so delicate and exquisite a plant will not succeed under conditions so different from those to which it has adapted itself.

Bâle, Switzerland. *H. Christ.*

The Iris Season.

To the Editor of GARDEN AND FOREST:

Sir,—I observe in GARDEN AND FOREST of November 30th of last year, that one correspondent thinks that the Iris season may last from May to August, while you yourself extend it to the period from February to August. I cannot resist the temptation to say that, with the help of a cold frame and a cool greenhouse, I manage so that I am never, I think, a whole fortnight during the year without an Iris bloom to look upon.

Iris Monnieri, a very handsome yellow Iris of the spuria group, is somewhat later than I. Kæmpferi, and very soon after its last bloom has gone, I have, during early September or later, a fair succession of blooms from I. ensata, var. biglumis. This latter is a second blooming, but with me is better and fuller than the first blooming. I can always depend on this plant blooming twice. When it has passed away I have to depend on second blooms of certain dwarf Irises, namely, a variety of I. Cengialti, and certain hybrids from it, some dwarf Irises of the biflora group, some hybrids of I. virescens, etc. These all bloom fitfully, and as the damp, late autumn comes on, the blooms are poor; but still they are there. And I often get late second, or even third, blooms from the little North American I. lacustris. Before these have wholly failed, I. Vartani (belonging to the reticulata group) and I. alata make their appearance in a cold frame; very soon afterward I. unguicularis (stylosa) comes out in a cool greenhouse, say, in December, and then I am quite safe, for I. unguicularis goes on blooming for many weeks. I. Palæstina flowers at Christmas in the greenhouse, and with the help of a few pots of I. histrio, and others of the reticulata group, I am secure until the various forms of I. reticulata and I. Rosenbachiana flower in the open ground, to be followed by other bulbous Irises until the first I. pumila expands. I may add that the hybridization of Irises is not wholly unbroken ground. I have some thirty hybrids of my own raising which have flowered, and of some of which I am rather proud; and there are very many more "on the way."

Shelford, Cambridgeshire, England. *M. Foster.*

[The note to which our correspondent refers was from the owner of an estate whom we knew to be especially interested in hardy plants, and our comments were only intended to note the flowering of Irises in the open without protection. We know of gardens here where Irises may be found in flower under protection from early November till flowers appear in the open ground in the early year. It will scarcely be denied, we think, that Irises are very scarce flowers from August to November, but we are obliged to Professor Foster for calling attention to the fact that from his well-known rich collection of plants it is possible to secure flowers even at that dry season. Further notes from him as to varieties likely to flower then will be helpful to our readers. We say likely to flower, for it appears from the list given that most of the blooms of that season are secondary and fitful. The horticultural world will welcome any hybrid Iris bearing Professor Foster's endorsement, and we trust others may follow the good example and add to the riches of our gardens.—ED.]

Tigridias.

To the Editor of GARDEN AND FOREST:

Sir,—Mr. W. Watson, in reviewing Mr. Baker's book on Irideæ in Number 250 of GARDEN AND FOREST, says: "There does not appear to be any good reason for keeping up Tigridia Pringlei as a species distinct from T. pavonia." I infer, therefore, that Mr. Baker has placed it under T. pavonia. The late Sereno Watson named this species from bulbs collected by Mr. Pringle, and flowered at Cambridge, affording him the best material. In his description of it when figured in GARDEN AND FOREST, October 10, 1888, he speaks of it as closely related to T. pavonia, but he mentions certain specific differences which led him to call it a distinct species. After growing T. Pringlei several seasons with T. pavonia, it is hard to believe them the same. T. Pringlei seeds very freely in this climate; almost every flower produces a full capsule, while T. pavonia produces none. T. pavonia increases fast by division, while the opposite is the result with T. Pringlei; indeed, it does not seem to divide at all. I never knew a flower of T. Pringlei to open the second time, but I have seen those of T. pavonia open, close toward night, and open again the second day. But these characteristics may have no bearing as to its being a distinct species.

In the same paragraph of this review Mr. Watson says, "Tigridia Dugesii and T. buccifera are likely garden-plants from the description of them." Are we, then, to infer that T. buccifera, Watson, is also not a true species? I believe that Mr. Watson decided that T. Dugesii was not a Tigridia, but belonged to the genus Nemastylis.

The question suggested to a vendor of these plants, who would like to keep as near the correct nomenclature as possible, is, whose authority is best? If Mr. Sereno Watson was wrong, then how many other species are we growing under the wrong name?

Charlotte, Vt. *F. H. H.*

[Tigridia Pringlei, T. buccifera and T. Dugesii are described as distinct species in Baker's *Handbook of Irideæ*. In a note to T. Dugesii, Mr. Baker says, "It was afterward, I think wrongly, removed by Dr. Watson to Nemastylis."—Ed.]

Notes.

"You must nurse your own flowers," wrote Robert Southey, "if you would have them flourish, unless you happen to have a gardener who is as fond of them as yourself."

The New York *Lumber Trade Journal*, in the receipt of lumber for 1892, in the metropolitan district, includes among the foreign woods imported, rattan, $546,485; mahogany, $962,241, and cork, $1,166,393.

Choice cut flowers of the American Beauty Rose are selling at $2 a piece in this city; and among fruits, Naval Oranges bring $1 to $1.25 a dozen, and Grape Fruits $1.50 a dozen. Cups of New Jersey hot-house Strawberries, containing fifteen berries, sell for $3.

A recent article in the *American Agriculturist* describes San Maguil ranch, in Ventura County, California, as the largest tract in the world devoted to the cultivation of Lima Beans, there being 1,350 acres. The shipments in 1891 amounted to 1,005 tons, and twenty-five tons were retained for seed.

In regard to the relative rank of the architect and the landscape-gardener, the poet Cowley, in the seventeenth century, said in his treatise, "Of Agriculture," "The three first men in the world were a Gardiner, a Ploughman, and a Grazier; and if any man object that the second of these was a murtherer, I desire that he would consider that, as soon as he was so, he quitted our profession and turned builder."

The agricultural experiment station at Yuma, Arizona, has been testing during the year the varieties of early fruits and vegetables which can be cultivated to the best advantage in that torrid climate. It is thought by the people of that region that Arizona and some of the favored parts of southern California will ultimately furnish eastern cities with the supply of winter vegetables which now largely come from Bermuda and the southern Atlantic states.

The first number of *The Orchid Review*, published this month, contains illustrations of the hybrids Cypripedium Niobe and C. Edwardii, together with the first of a series of historical articles on Orchid hybridization, descriptions of new and notable Orchids, and a list of recently published Orchid portraits. This new English periodical, devoted exclusively to Orchidology in all its departments, is established with special reference to the interests of amateur cultivators, and is intended to be a monthly repertorium of information and a record for future reference.

The two-hundredth anniversary of the discovery of sexuality in plants is noted in the *Popular Science Monthly* for February. Rudolf Jakob Camerarius, professor at Tübingen, having published his report on this subject in the *Ephemerides* of the Leopoldine Academy, December 28, 1691, and in his memoir, *De Sexu plantarum Epistola*. His statement made but little impression, and, in 1793, the schoolmaster, Christian Conrad Sprengel, of Spandau, published a book in which were described the functions of the organs of flowers, and of the colored petals. This valuable work remained unknown until 1862, when Charles Darwin found it and made it public.

It is usually thought that no one in Europe cared for any but formal gardens until the eighteenth century, and that Milton's imaginative picture of what we should now call a landscape-garden, as the home of our first parents, showed a taste distinctly in advance of that of his time. Yet it seems as though certain individuals who were born before Milton must have loved the idea of "naturalness" in a garden, even if they did not express it as completely as the artists of the eighteenth century. In the *Elements of Architecture*, for instance, which was written by Sir Henry Wotton, who died in 1639, nearly forty years before Milton, we may read, "First, I must note a certain contrareity between building and gardening; for as Fabricks should be regular, so Gardens should be irregular, or at least cast into a very wild Regularity."

The recent sale to a building company of a tract of land, including about 3,000 feet of water-front, between Asbury Park and Elberon, on the New Jersey shore, has called attention to the fact that this property was granted by the Crown of Great Britain to the great-great-grandfather of the person who owned it until the transfer in question was made. It was specially conveyed to a colonist named Drummond at the time when a general grant was made by the Crown to Sir George Carteret and John, Lord Berkley, of the district called "Nova Cæsarea, or New Jersey"; and, with the exception of two farms, included in the recent purchase, has always remained in the possession of the Drummond family. The old Drummond homestead, bearing on its chimney the date 1755, and scarred with bullet-marks, which testify to the skirmish which preceded the battle of Monmouth, is to be preserved, and likewise a modest hotel, long locally noted under the name of Hathaway's. The present name of the shore, Deal Beach, will be retained, and it is to be hoped that, although a range of villas will be planted along the bluff, a part at least of the picturesque back country, with its little lakes and streams and passages of dense woodland, may not be needed for building purposes.

Describing, in her *Recollections of a Happy Life*, the striking plants which grow in wild profusion in South Africa, Miss North says that near the head of Van Staaden's Gorge, which is reached from the town of Cadles, she saw acres of Protea-bushes of different sorts, and huge Everlasting-plants standing a yard or two above the ground, with white velvety leaves around a thick stem surmounted by a cauliflower head of white petals and yellow stamens. These looked like tomb-stones at a distance. Near this in a marshy hollow was Sparaxis pendula. Its almost invisible stalks stood four or five feet high, waving in the wind, and were weighed down by strings of pink bells with yellow calyx and buds; they followed the winding marsh, and looked like a pink snake in the distance. Masses of Agapanthus in bloom made another beautiful picture, and so do the groups of Oldenburgia, a striking shrub which grows only on these hills, and on the very tops of them. Its stalks and young leaves are of the purest white velvet, the older leaves lined with the same, but the upper sides resemble the leaves of the great Magnolia. The flowers are like Artichoke-flowers, purple, with white calyx, stalks and buds, growing in a noble bunch. The whole bush is under six feet high.

In *Antheologia, or The Speech of Flowers*, a book written by old Thomas Fuller, described by him as "partly Morall, partly Misticall," and which was published during the height of the Tulip-mania in the seventeenth century, the Rose makes an elaborate oration in praise of her own charms, and then remarks: "More would I say in mine own cause but that happily I may be taxed of pride, and selfe-flattery, who speak much in mine own behalf, and therefore I leave the rest to the judgment of such as hear me, and pass from this discourse to my just complaint." And then she explains, "There is lately a Flower (shal I call it so? in courtesie I will tearme it so, though it deserve not the appellation), a Toolip, which hath engrafted the love and affections of most people unto it; and what is this Toolip? a well complexion'd stink, an ill favour wrapt up in pleasant colours; as for the use thereof in Physick, no Physitian hath honoured it yet with the mention, nor with a Greek, or Latin name, so inconsiderable hath it hitherto been accompted; and yet this is that which filleth all Gardens, hundred of pounds being given for the root thereof, whilst I, the Rose, am neglected and contemned, and conceived beneath the honour of noble hands, and fit only to grow in the gardens of Yeomen. I trust the remainder to your apprehensions, to make out that which grief for such undeserved injuries will not suffer me to expresse."

Catalogues Received.

W. Atlee Burpee & Co., Philadelphia, Pa.; Illustrated Catalogue of Flower Seeds and Seeds of Novelties in Vegetables; also, "All About Sweet Peas."—Henry E. Burr, Montrose Nurseries, Orange, N. J.; Rare Evergreen and Hardy Shrubs, Fruit and Ornamental Trees.—Jacques Collette, Ronchaine. Huy, Belgium; Flower, Vegetable and Grass Seeds.—W. Piercy, 89 Beadnell Road, Forest Hill, London, S. E.; Descriptive List of Early and Semi-early and Late-flowering Chrysanthemums.—T. H. Spaulding, Orange, N. J.; Choice Chrysanthemum Seed, Plants of Selected Native and Imported Chrysanthemums, Seeds and Bulbs of Tuberous Begonias, Cannas.—Kinton Stevens, Santa Barbara, Cal.; Tropical and Semi-tropical Fruit and Ornamental Trees and Plants.—J. C. Vaughan, New York and Chicago; Trade List of Seasonable Bulbs and Flower Seeds.—Vilmorin-Andrieux & Co., 4 Quai de la Mègisserie, Paris; Seeds of Novelties in Vegetables and Flowers.—M. Windmiller & Son, Mankato, Minn.; Tree Roses and Tuberous Begonias.